MDM Solutions

Single Customer View

Master Data Management/Customer Data Integration

What is Single Customer View?

Single Customer View is a term used to describe the aggregating of multiple data sets into one unified database to provide businesses with a holistic view of each customer they transact with.

Why do we need Single Customer View (SCV)?

- Without the SCV, companies miss opportunities for cross-selling, up-selling, customer service issues and other marketing initiatives
- Single Customer view delivers a broader view of the customer that can be leveraged to spawn new revenue opportunities, improve customer service and increase efficiencies

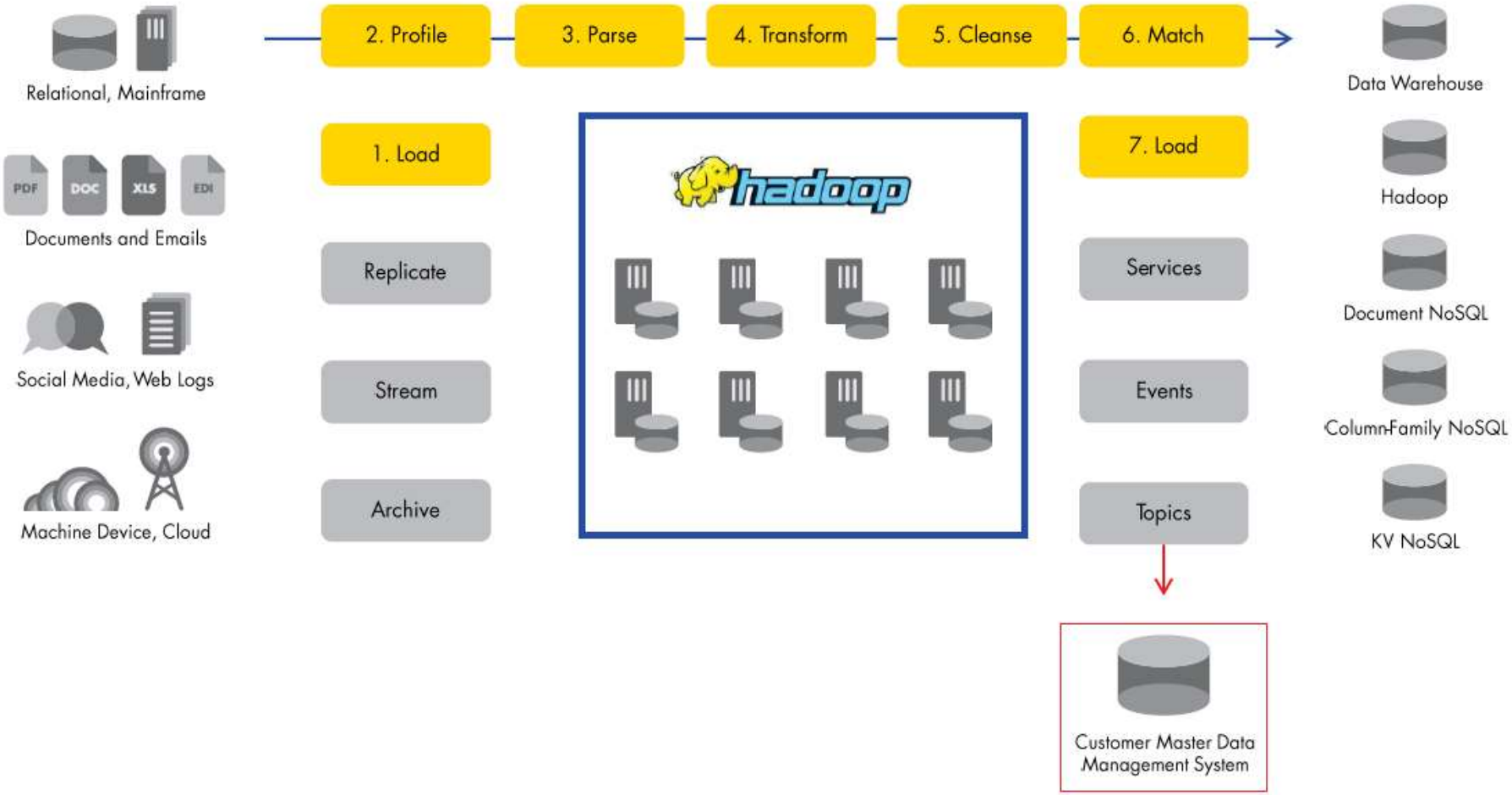
Now, we have the SCV Analysis. What next?

- Deliver real-time intelligence (using complete data-set of a individual customer), across all customer touch-point applications so that personalized communications can be triggered after each event within a session

Approach by traditional MDM solution providers

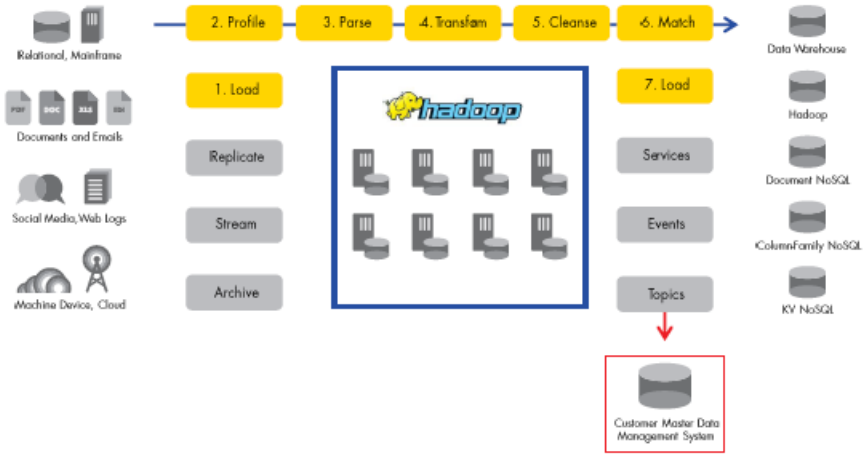
#3: 360-Degree View of the Customer

Connect events and transactions with customer master data



Approach by traditional MDM solution providers

#3: 360-Degree View of the Customer



Traditional process: With one-off customizations and integration projects the norm, customer, product, and transaction data is traditionally fragmented and spread across different siloed systems.

The challenge: Your customer (or other business entity) data is typically scattered across dozens of systems. Without a single 360-degree view, companies miss opportunities for cross-selling, upselling, and other marketing initiatives. Not to mention, they run the risk of customer service issues.

Benefits of a data-centric approach: By leveraging master data capabilities, automation, and intelligence, a data-centric approach can deliver the broader view of a customer that can be leveraged to help spawn new revenue opportunities, improve customer service, and create efficiencies.

Key takeaways:

- Implementing a master data initiative around a business entity such as customer, partner, or part number will provide a solid basis of trusted data for your current business initiative that can be re-used in any other application, analysis, or initiative that needs data about that business entity. This will speed delivery of new projects that use that data.
- Adding this to the first and second reference architectures will provide access to a broad variety of internal and external data.

360 Degree View (Single View) of the customer

Approach by traditional MDM solution providers

1. Connect and Load Data from all available data sources; Existing Databases (All types), Document Types (PDFS, Docs, XLS, Emails, EDI or any messaging documents), Structured and Unstructured Web Data Sources (Social and Web) and Any other data sources that could be available in your dedicated environment (OnPremise) or in cloud environment
2. Start Data Profiling from the data loaded across all data sources (Refer last slide)
3. Parsing data which involves the work of extracting data, parsing string data, and converting data to an Integration Services data type
4. Subsequent transformations may parse data to convert it to a different data type, or create column copies with different data types.
5. Data cleansing will identify incomplete, incorrect, inaccurate, irrelevant, etc. parts of the data and then replacing, modifying, or deleting this coarse data
6. Data Matching to reduce data duplication and improve data accuracy in a data source. Matching analyzes the degree of duplication in all records of a single data source, returning weighted probabilities of a match between each set of records compared. You can then decide which records are matches and take the appropriate action on the source data.
7. Load back the data to the Target Database
8. Now you are ready to create a Customer Master Data Complex so that you can query a customer id and retrieve all data tagged to this data entity to build Single Customer View

Limitations and Gaps in this approach

Approach by traditional MDM solution providers

1. This 7 step process happens every time, new data is collected. For example: If there is a new set of data collected on Web logs or a new software added, would mean running the Load | Profile | Transform |Match process before we load to the data-warehouse. This can create severe latency when it comes to generating real-time insights for current session personalization
2. Data Profiling is incomplete. For example: The data source from a Weblog (which contains information of customers in anonymous browsing state (not logged but just browsing) maybe recorded without any customer identifier. It is not possible to tag this data to the customer id hence loss of customer information. This results in inaccurate analytics. Similarly with email campaign effectiveness and data from other inbound sources might create gaps to visualize accurate customer journeys
3. Since the data profiling steps had gaps, it will affect the data cleansing process and this might leave behind or omit data that might turn out to be incomplete, incorrect, inaccurate, or irrelevant. This affects Data Matching as there could be data that is not tagged or still in isolation or deleted. This leaves the system susceptible to errors
4. The data loaded to the target system can now be regarded as semi-cleaned structured data with data relationship across sources. You can generate a Single Customer View with available tagging but this data-set has no insights about the customer, which would mean you need to do more work over this data

Limitations and Gaps in this approach

Approach by Informatica and other MDM solution providers

5. Now we need to run query analyzers or other tools to create custom visualizations for this data to either analyze, forecast, predict or others, in order to deduce insights to make internal decisions. Incompleteness in data relationship will make room for less accurate insights
6. For more intelligent decisions(based on behavior, customer interactions and other), you will need to connect to data mining tools to be able to classify, cluster, associate, learn and visualize. The output of these models is necessary for users to make decisions. Incompleteness in data relationship will provide incomplete data-set to the mining engine- thus creating a cumulative effect on learning steps
7. Since these insights need to be converted to actions and needs to be enabled at customer touch-points, you will need to connect this data back to the source databases to render these insights in touch-points. Insights that is sent back to the source application can be less effective due to error probabilities stemming from incomplete data-set
8. **If our objective is to serve real-time effective customer campaigns, it is impossible to achieve it using the current approach**

Which business users are majorly affected?

Approach by traditional MDM solution providers

1. The CFOs

   Due to monetary data such as marketing spends, customer retention spends are tagged to sources and communication inventory, it becomes extremely tough for finance teams to arrive at unit level spends. This makes the team to resort to adhoc calculations which results in incorrect metrics. This increases error rate in analysis of marketing ROI, calculating customer net profits and customer lifetime value predictions

2. The Customer Team (Marketing, Sales and Support)

   It is very important for the customer team to get 360 view of the customer in order to strategize their customer communication and interactions. Incomplete customer views results in out-of-context communication – which results in ineffective conversions and bad customer experience

3. The CEOs and CTOs
   1. Due to the incompleteness in data, the CEO might have errors in their KPI monitors
   2. Every time there is a new software, the CTO has to visit the entire data processing steps to accommodate new fields to maintain single customer data

The Real Solution

Reverse Approach (Bottom's Up) to create a full fledged Single Customer view with higher accuracy and relevance

What do we need to achieve it?

1. **Base Architecture with tagging pre-sets (Absolute Data Tagging)**
   It is important to build a data aware model where data when captured is directly stored against the tag. For new data, it is important to build the relationship and then stored. With this, each time data is collected, it can store against the per-existing tag.
   1. If done for each customer/user, it would create a holistic view across all channels and sources.
   2. If data is sequenced using time-series, it can create complete customer journeys without gaps.
   3. If objective states are set, it can create tags based on stages of the customer lifecycle

   With this we achieve a holistic view of a single customer without any gaps. This makes way for accurate analysis

2. **Behavior Patterns and Real-time scoring**
   Now that we have the customer journey of a single customer, successful and unsuccessful patterns can be identified. Assigning meaningful scores to each event can help in creating auto segmentation based on behavioral parameters which broadly comprises of customer interactions, responses, transactions and perceptions

What do we need to achieve it?

3. **Association Rules and Real-time scoring**
   The behavioral data exposes to insights that will help in deliver recommendation based on past purchases, wish lists or by pattern derived from users with similar profiles. We can use real-time recommendation models to arrive at product list by scores based on association parameters

4. **Real-time pattern matching or state identifiers for trigger activation**
   Using a lifecycle grid analysis, you can create states across the customer lifecycle and use the behavior or recommendation scores to trigger communication. A rule library for each state or segment type will allow the machine to trigger communications if a particular rule is satisfied

5. **Response recording and the insight churn loop**
   After the communication is triggered, the system needs to loop back the responses of the customer with respect to the communication and store data against the pre-existing tag

   This ensures that the new responses are added to the existing insights and the new derivative is rendered for next action
   And storing against the tag will help maintain single customer data at all times

plumb5

Plumb5 is a real-time business platform that offers

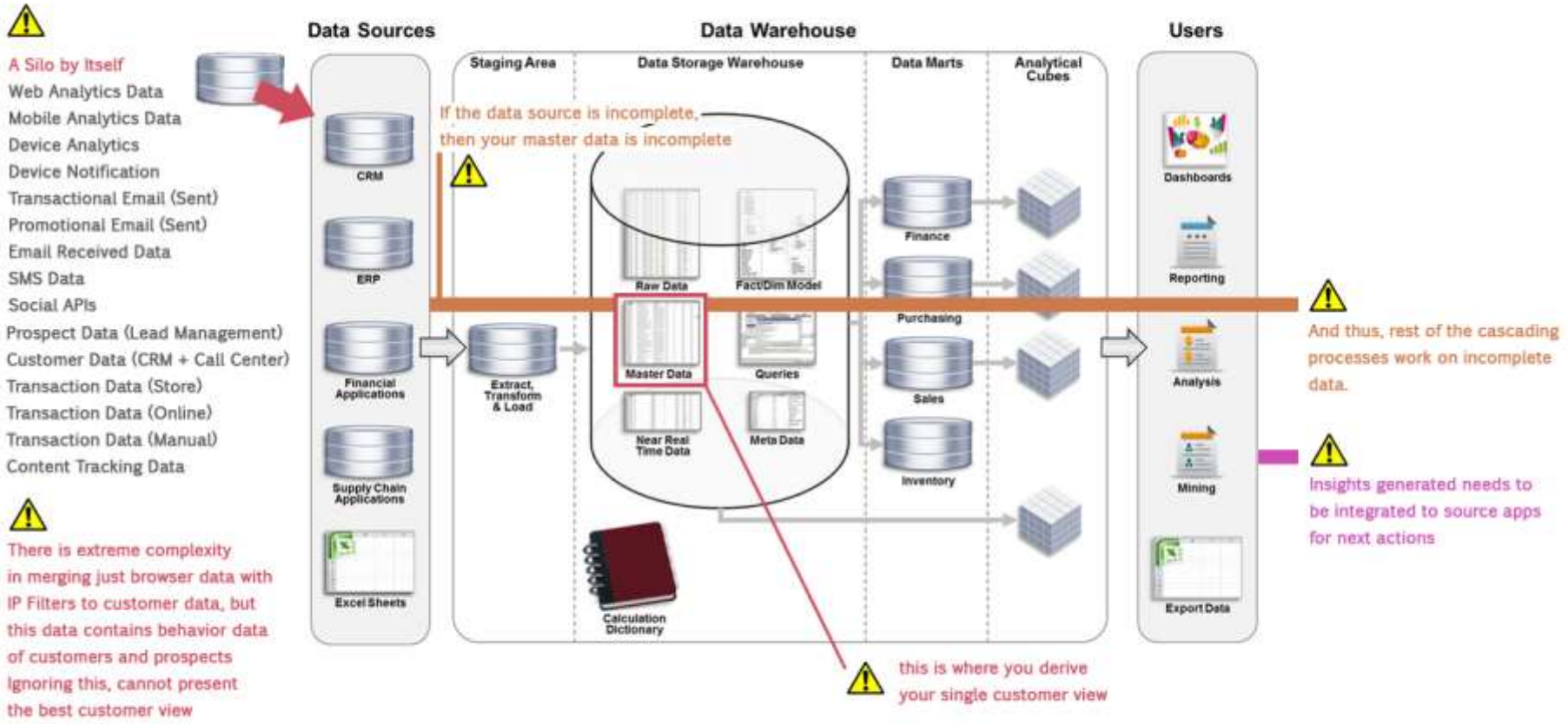
- A comprehensive marketing platform for customer facing teams with single customer view built over neural network based customer data schema (CDM Solutions)

- A multi-dimensional reporting and visualization for business intelligence built over neural network based master data schema (MDM Solutions)

Approach Comparison

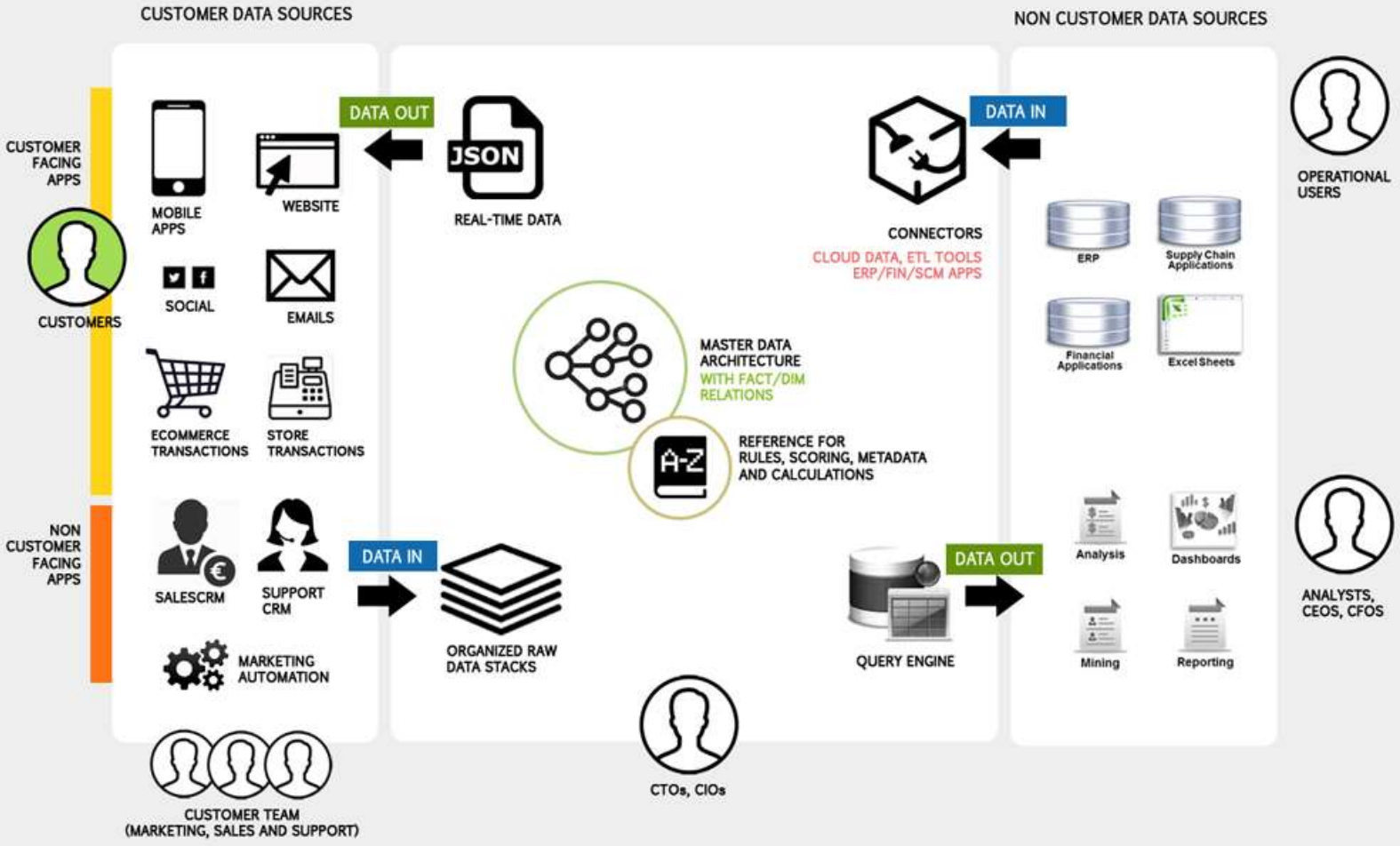
	Traditional MDM	Plumb5
Step1	Integrate all data sources	Deploy Base Architecture (Unfied Customer Stack)
Step 2	Manage Tagging and Metadata	Integrate all other data sources
Step 3	Parsing and Data Transformation	Update Tagging and Metadata
Step 4	Cleansing and Matching	Create Single Customer View
Step 5	Load back to Target App	Update Nodes to maintain Single Customer View (Time series data sequencing)
Step 6	Query to get Single customer view	
Step 7	Loop Process to collect new data and to maintain Single customer view	
Step 8	Additional Process for Insights	Inbuilt
Step 9	Additional Process for Data Visualizations	Inbuilt
Step 10	Additional Process to connect back to touch-points to deliver real-time insights for personalization	Inbuilt

Graphic Comparison- Current Approach



Graphic Comparison- Plumb5 Approach

OPTIMIZED APPROACH



Why is Plumb5 approach tightly coupled?

1. Data Aware
   The system has a base classified customer master and provides custom tag for each channel and target sources. This makes sure that no data is isolated and every data is part of the subnet

2. Classification of User Identity
   The system provides states for easy recognition of customer lifecycle stage. This helps in storing and tagging data at that instant and saves further querying processes

3. Business Neural Network
   Using a Node based architecture, the data isolation problem is solved. So everytime there is a gap or no connections between nodes, there is an alert and can be rectified easily without any ambiguities

Direct Advantages

Bottom-Line Growth

Customer Experience

Real-time Business Monitors

AI Driven business automation

Advantages – Bottom-line Growth

1. Pricing tags at all data transactions:
    1. Unit Economics
       With Single Customer View, the finance team knows exactly how much is spent on acquiring and retaining the customer. This will allow them to strategize on discounts and offers for repeat sales
    2. Marketing ROI
       With exact P/L on each customer, you can roll-up customers coming from the specific marketing campaign or a channel to understand the effectiveness and returns on each campaign
    3. CLV Predictions
       With Single Customer View, the finance team can easily apply the RFMS model to understand the churn percentage or retention rate of a particular customer, which is useful to predict the lifetime value of a customer

2. Cost Optimization
   Due to Data Silos, Unstructured Data Maps, there is a lot of cost spent on resources to manage data at different stages. The IT costs can be optimized at the following areas
    1. Data Warehousing and Integration costs
    2. Data Mining and its Resources
    3. Data Visualization and its Resources

Advantages – Bottom-line Growth

3. Cost of Customer Communication:
    1. Single customer view presents you with insights on where your customer actively communicates so that you don't have to send Email/Mobile messages to touch-points where he is not active. So this will help save a lot of costs on redundant communication
    2. Single customer view presents you with insights on individual customer behavior- which can be handled efficiently to bring down customer service costs

4. Real-time Pricing

    Extending Plumb5 MDM architecture will allow businesses to arrive at real-time pricing which translates to pricing changes due to direct labor costs or raw material costs or machinery/infrastructure costs. Using Plumb5 MDM solution, the business can set automated workflows to calculate present day expense of a specific product and update the "actual price" node for further calculation of margins and allocation of discounts on a specific product

Advantages – Customer Experience

1. **Contextual Targeting**
   With Single Customer Data and Real-time scoring, you can enable context based personalization and provide relevant content to create a great customer experience

2. **Customer Issue Solving**
   With Single Customer Data connected across all touch-points, you can quickly identify customer issues and resolve them before your customer is further annoyed

3. **Human like Interactions**
   With Single Customer Data and Real-time segmentation, you can setup triggers to engage customers more effectively at every touch-point. With learning models, you can train the machine to interact just like the way, humans do

4. **Right on time**
   Real time feature allows you to engage with customers and solve customer problems in faster time, which helps in building great customer experiences

Advantages – Real-time Business Monitors

1. **Monitor your Business Metrics**
   Using Plumb5, you can build real-time KPI dashboards to monitor customer behavior, conversions, product affinity and recommendations, Omni-channel spends and return on investments and Top-line growth across all channels

2. Build any kind of reports across all dimensions and data types

Advantages – AI Driven Business Automation

1. **Automated Personalization using Machine Learning**
   With Inbuilt Propensity and Association Models, you can enable training sets for machine learning and offer personalization campaigns based on single customer view.

2. **Integrating Neuro-marketing**
   Using text and image analysis, you can take customer experience to the next level by integrating mood parameters from facial recognition or object recognition for similar product recommendations

3. **Digital Assistants for Customer Communication**
   You can train digital assistants to answer all your customer queries either on the web or on the phone and maintain communication standardization and higher efficiency

4. **Digital Assistants for Data and Insight stewardship**
   You can train digital assistants to roll-out reports using visual adhoc query or predict scenarios or even prescribe goal-paths for higher effectiveness